

Remarks

I. Claim Status

Claims 1-12 are pending in this application, but the outstanding Office action states that only claims 1-9 are pending. The Official Filing Receipt confirms that 12 claims were filed with this application.

Applicant therefore requests that claims 10-12 be deemed allowable.

Alternatively, the Office action of November 24, 2004, should be withdrawn and a new Office action issued that addresses all of the pending claims.

II. Request for Suspension of Action

Applicant has petitioned the Supreme Court of the United States to grant *certiorari* to hear applicant's appeal of the *In re John Dash and Patrick S. Keefe* non-precedential decision by the Court of Appeals for the Federal Circuit concerning related application No. 08/439,712. Applicant requests suspension of action on this application for six months, and preferably for the entire pendency of applicant's appeal to the Supreme Court. This would allow the Supreme Court time to reach a decision concerning applicant's appeal.

The issues presented by the Office action of November 24, 2004, concerning the present application are substantially identical to the issues being appealed by applicant to the Supreme Court. It therefore is in the best interests of both the Patent Office and applicant to suspend action on the present application.

III. Objection to Specification under 35 U.S.C. § 112, First Paragraph

The specification is objected to as allegedly failing to provide an adequate written description of the invention and for allegedly failing to adequately teach how to make and/or use the invention. Applicant traverses this objection and requests that it be withdrawn.

The Office action states that the specification is objected to under Section 112, first paragraph, because there allegedly is no reputable evidence of record to support any allegations

or claims that the invention involves nuclear fusion, nor that any allegations or claims of ‘excess heat’ due to nuclear and/or chemical reactions, are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing a useful output.

Applicant respectfully disagrees.

Applicant submits herewith declarations under Rule 132 to address this rejection. These declarations, as well as any other evidence submitted by applicant in progenitor applications, are expressly made of record in the present application. These declarations are based on both the inventor’s own work, and the work of others in the field. The evidence presented by these declarations shows that, even with a lower power input than the power input to a control cell, cells made according to the present invention produce an excess thermal output. This is clearly shown by the power input over time, and temperature over time, graphs that accompany the declarations submitted herewith. While the source of this thermal output may not be clear, applicant is under no requirement to explain how the invention works in order to obtain patent protection. In each of many trials covered by the declarations, the invention as claimed by the present application produced a higher thermal output than a control cell.

Furthermore, accompanying this response is a declaration by Dr. Robert J. O’Brien, a Professor of Chemistry at Portland State University. Dr. O’Brien’s declaration states that he observed the operation of an apparatus as described in the present specification. Dr. O’Brien concludes that Dr. Dash’s trials consistently have demonstrated unexplained excess power production in the cell containing a palladium electrode, relative to the platinum electrode cell. Dr. O’Brien specifically states that “this power production appears to be beyond what could be explained by any transient chemical effect due to contamination or impurities.” Thus, another expert in the field of chemistry, who has PERSONAL KNOWLEDGE OF THE PRESENT INVENTION, has concluded that it results in the production of excess heat.

Dr. O’Brien’s declaration does state that the invention results in “unexplained excess power production.” But, applicant is under no legal obligation to explain the mechanism by which the claimed invention results in heat production.

Thus, evidence submitted by applicant in this and progenitor applications establishes that the present invention results in heat production.

The evidence submitted by applicant also establishes that practicing the method of the invention using the claimed apparatus may result in the formation of gold and silver on the

surface of a palladium cathode. Gold and silver are produced on the cathode only on those portions of the cathode that are immersed in the electrolyte. This production of gold and silver is strong evidence that a nuclear event is occurring.

Dr. Dash's invention also is becoming internationally known, and is being practiced in several countries other than the United States. For example, accompanying this amendment are two documents establishing that Italian high schools, including Leonardo DiVinci High School, has adopted Dr. Dash's invention as useful teaching tool for demonstrating reproducible production of heat energy. An Abstract from these efforts at Leonardo DiVinci High School is attached, which states that:

"On passing a current through the cells the temperatures in both rise in much the same amount. At a certain point the experimental cell temperature accelerates and remains some 8-10° C above that of the control cell."

Moreover, Professor Dash was invited to demonstrate his invention as recited in the claims of the present invention at Changchun University of China. Professor Dash was assisted by Professor Xing Zhong Li of Tsinghua University in Beijing. Students at Tsinghua University assembled the apparatus disclosed and claimed by Dr. Dash, and used the assembled apparatus, to perform additional trials in production of heat energy. By the end of the week, the students had performed at least two successful experiments using Dr. Dash's claimed invention to produce heat energy.

As a result of Dr. Dash's visit, Tsinghua University has instituted additional research efforts concerning the invention claimed by Dr. Dash.

For the reasons stated above, applicant requests that the objection to the specification under Section 112, first paragraph, with respect to nuclear events and the production of energy be withdrawn.

IV. Rejection of Claims 1-8 Under 35 U.S.C. § 112, First Paragraph

Claims 1-8 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons stated by the Examiner concerning applicant's specification. Applicant traverses the rejection of the claims under 35 U.S.C. § 112, first paragraph, for the reasons presented by applicant to rebut the objection of the specification, and requests that such rejection be withdrawn.

V. Rejection Of Claims Under Section 101

Claims 1-8 are rejected under 35 U.S.C. § 101 because the invention as disclosed allegedly is inoperative and therefore lacks utility. Applicant traverses this rejection, and requests that it be withdrawn.

Attached are several Rule 132 Declarations, as well as the results obtained both in Italy and in China, demonstrating that the invention as claimed works as applicant states. These declarations, and any other evidence previously submitted by applicant in related and progenitor applications, are expressly made of record in the present application.

The examination guidelines indicate that a statement of utility should be accepted by an Examiner, unless the Examiner can provide evidence countering that provided by an applicant. The Patent Office cites the work of others, using devices and compositions that are not identical to applicant's, to rebut the utility of applicant's claimed invention. The methods and apparatuses used and/or evaluated by such others are distinguishable from those of applicant. Hence, the materials referred to by the Examiner to rebut the utility of applicant's invention should not be considered to negate the evidence submitted by applicant to verify the utility of the present invention.

VI. Rejection Of Claims Under 35 U.S.C. § 112, First Paragraph

Claims 1-8 are rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to disclose the best mode for practicing the invention. Applicant traverses this rejection and requests that it be withdrawn.

The Office action states that the application fails to disclose certain, allegedly "best mode" features of the invention, including applied current and voltage, time period, isotopic composition of the electrodes, electrode dimensions, etc. Perhaps the Examiner failed to notice the specific features recited in the Examples. Excerpts from these examples are provided below. This information clearly satisfies the best mode requirement of Section 112, and applicant requests that the rejection of claims 1-8 be withdrawn.

A. Application Example Excerpts

EXAMPLE 1

The “electrolyte [comprised] a mixture of twenty ml. of water and 3.5 ml. of concentrated sulfuric acid”.

“The sulfuric acid was analytical grade, with a specific gravity of 1.84.”

“An electrolyte was prepared and placed in cell 1 comprising twenty ml. of D₂O (99.75 percent heavy water) and also 3.5 ml of concentrated sulfuric acid.”

“A voltage of about 3.5 volts was applied across each cell.”

“Because of the greater resistivity of the electrolyte in the heavy water cell, or cell 1, a platinum anode having three times the cross-sectional area of the anode utilized in cell 2 was employed.”

“The size of the cathodes in the two cells were the same, i.e., 1 cm².”

“Voltage was applied across the cells for a period of five days, throughout this time the voltage drop across each cell remained the same, i.e., about 3.5 volts.”

“The production of tritium in the electrolyte containing heavy water and sulfuric acid and the lack of any production of such material in the electrolyte comprising water and sulfuric acid was determined by liquid scintillation techniques.”

EXAMPLE 2

“This example describes the use of a titanium cathode, instead of a palladium cathode as with example 1, in an energy producing system. Pure titanium foil (0.25mm thick, 99.99+% Ti) was spotwelded to platinum lead wire and made the cathode in an electrolytic cell with a platinum anode and 15 ml of electrolyte containing 0.01 mol fraction H₂SO₄ (reagent) and 0.99 mol fraction D₂O (99.9 atom % D).”

“An identical cell containing a platinum cathode was connected in series.”

“Constant current was used during the experiments.”

“Using a constant current of 0.55 A resulted in current density of about 2 A per square cm on the titanium cathode. This current was passed for about 33.5 hours.”

“The resulting power input and temperature-time data for each cell are shown in FIGS. 2 and 3. It should be noted that the control (C) cell was taken out of the circuit after about 23 hours, due to excessive loss of electrolyte.”

“Geiger-Mueller counters were used to monitor radiations from the C and D cells throughout the experiment”

“The titanium cathode was examined before and after electrolysis with SEM and EDS.”

EXAMPLE 3

“This example describes an experiment similar to that described in Example 2. However, in this experiment the current density was about 0.5A/sq. cm instead of 2 A/sq. cm. The excess heat produced by this cell was about 0.5 watt for a titanium electrode from the same lot, and having about the same mass, as that used in Example 2. The cathode used in this Example 3 also was examined with SEM and EDS.”

B. Dr. Miles

The Office action also refers to a paper by Dr. Melvin H. Miles. Dr. Dash has discussed this matter with Dr. Miles. Attached hereto is correspondence from Dr. Miles to Dr. Dash. Dr. Miles has substantially recanted his negative position concerning Dr. Dash’s invention, as evidenced by the attached correspondence. With reference to the Patent Office’s reliance of his evaluation, Dr. Miles states unequivocally that “This is totally wrong.” And “the U.S. Patent Office cannot use my studies to make any ruling for or against your [Dr. Dash’s] system.”

Moreover, Dr. Miles adopted a statistical confidence level of 3 sigma when evaluating data he obtained when studying Dr. Dash’s invention. Most of the scientific community accepts 2 sigma. Under this standard, Dr. Dash’s claimed invention clearly demonstrates statistically reproducible results.

VII. Rejection Of Claims Under 35 U.S.C. § 112, Second Paragraph

The Office action rejects claims 1-8 as allegedly being indefinite under 35 U.S.C. § 112, second paragraph. Applicant traverses this rejection and requests that it be withdrawn.

First, applicant respectfully disagrees that the references cited teach the exact structure and composition of the invention recited in the claims of the present application. Moreover, the work of others should not be used to determine whether applicant’s claims, in view of the application as filed, are definite. For this reason alone, applicant requests that the rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

Furthermore, as shown above, applicant provides significant detail concerning the amount and composition of the electrolyte, the size and composition of the electrodes, the current applied, the time applied, etc. This data clearly is sufficient to enable a person to determine what parameters should be used to make a device, and how to use such device, as claimed in the present application. For this second reason, applicant requests that the rejection under 35 U.S.C. § 112, second paragraph, be withdrawn.

Finally, applicant has amended claim 1 to more definitely state that the acid is sulfuric acid, that the electrodes are palladium, platinum, and titanium, and that a current density of at least 0.55 A/cm^2 is applied. Support for these amendments is provided throughout the specification. For example, the use of sulfuric acid is discussed in Examples 1-3 as detailed above. Platinum, palladium and titanium are identified on page 1, line 28. Example 2, page 6, lines 12-13, state that the current density was 0.55 A/cm^2 .

VIII. Rejection Of Claims Under 35 U.S.C. § 102 (a, b and g)

Claims 1-5, 7 and 8 are rejected as allegedly being anticipated by Pons *et al.* (WO 90/10935). Applicant traverses this rejection and requests that it be withdrawn.

As currently understood, and contrary to the Examiner's characterization, Pons does not teach using H_2SO_4 , but instead teaches using D_2SO_4 .

Applicant has amended claim 1 to recite that the ionizable acid specifically is sulfuric acid. Thus, Pons does not anticipate claim 1, and hence this rejection of claims 1-8 should be withdrawn.

And, sulfuric acid is not equivalent to D_2SO_4 with respect to the present invention. Specifically, Dr. Miles concluded, as recited in the attached correspondence, that:

Furthermore, the use of your $\text{D}_2\text{O} + \text{H}_2\text{SO}_4$ gave much higher electrolytic conductivity for the cell, thus input powers that I used in this experiment were much lower than in all my other experiments. My calorimeter was much less accurate over this low input power range.

Dr. Schwinger, a Nobel laureate, postulated that cold fusion involved a reaction between hydrogen isotopes and deuterium isotopes. Dr. Dash's claimed invention uses H_2SO_4 , as opposed to D_2SO_4 as taught by Pons, and hence puts more hydrogen isotope into the electrolytic composition. This significantly facilitates the process.

Thus, applicant's amendment to claim 1 distinguishes Pons, and the resulting recited invention is not obvious in view of Pons.

Claims 2-8 depend from claim 1 and are allowable for the reasons stated concerning claim 1, and further in view of the patentable combinations of features recited in these dependent claims.

For these reasons, applicant requests that the rejection of claims 1-8 as allegedly being anticipated by Pons *et al.* (WO 90/10935) be withdrawn.

IX. Rejection Of Claims 1-5, 7-9 Under 35 U.S.C. § 103(a)

Claims 1-5 and 7-9 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable for obviousness over Pons *et al.*, in view of either Decrosta or Pryor *et al.* Applicant traverses this rejection, and requests that it be withdrawn.

Pons, the Primary reference cited in this rejection apparently has been mischaracterized. As applicant understands Pons, this reference does not teach using H₂SO₄ in the system of claim 1.

Decrosta or Pryor *et al.* do not cure the deficiencies of Pons *et al.*

Thus, applicant's amendment to claim 1 distinguishes Pons, and the resulting recited invention is not obvious in view of Pons.

Claims 2-5 and 7-9 depend from claim 1 and are allowable for the reasons stated concerning claim 1, and further in view of the patentable combinations of features recited in these dependent claims.

For these reasons, applicant requests that the rejection of claims 1-5 and 7-9 as allegedly being obvious in view of Pons *et al.* (WO 90/10935) in view of either Decrosta or Pryor *et al.* be withdrawn.

X. Rejection Of Claim 6 Under 35 U.S.C. § 103 (a)

Claim 6 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable for obviousness over Pons *et al.*, in view of any of Storms *et al.*, Bertalot *et al.*, or Williams *et al.* Applicant traverses this rejection, and requests that it be withdrawn.

Pons has been distinguished for the reasons discussed above. Because the primary reference cited against claim 6 has been distinguished, the combination of Pons *et al.* and the other references does not teach or suggest the invention recited in claim 6.

XI. Rejection Of Claims 1-9 under 35 U.S.C. § 103(a)

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable for obviousness over Fleischmann *et al.*, Pavel *et al.*, in view of any of Von Sturm, Krause *et al.*, Federova *et al.*, Flanagan *et al.*, or Spengler *et al.* Applicant traverses this rejection and requests that it be withdrawn.

Applicant's claims state that the electrolyte includes sulfuric acid. Fleischman does not teach or suggest using an ionizable acid at all. Fleischman discloses using LiOD as the electrolyte, not sulfuric acid. In fact, LiOD was critical to Fleischman's process because he required a source of D^+ not a source of H^+ . Therefore, the primary reference fails to teach certain elements of the claims, and would not be modified in such a way as to teach the invention of the present application.

Von Sturm and Spengler concern electrolysis of water, and teach away from using a deuterated species as required by the claims. If von Sturm or Spengler were to use a deuterated electrolyte, the results would be the production of DH and not H_2 . Furthermore, these secondary references provide no teaching as to the methods of producing heat energy in the unexpectedly superior manner claimed in the present invention.

Fedorova was published in 1959, three decades prior to the conception of the present invention. Fedorova provides no teachings concerning the electrolyte used by the present invention to produce excess thermal heat. In fact, the passage referred to by the Examiner simply concerns cleaning the electrodes, and does not teach using an electrolyte containing both sulfuric acid and D_2O . Fedorova specifically states that "before the experiment the electrodes were degreased by heating to $60^\circ C$ in concentrated sulfuric acid, [and] carefully washed in twice-distilled water..." What relevance does the degreasing of electrodes by Fedorova have to the production of a thermal output according to the method steps of the present invention?

Flanagan was published in 1961, and therefore also is almost three decades prior to the conception of the present invention. Flanagan appears to teach using palladium cathodes in a DCl solution. Applicant understands that he was not the first to recognize that palladium could

be used as a cathode, nor the first to recognize that hydrochloric acid, or DCl, solutions can be used as electrolytes. However, prior to applicant's invention, it was not recognized that unexpected productions of excess heat could result if an electrolyte solution containing sulfuric acid, as opposed to DCl, and a palladium cathode were used. As a result, the present invention is not obvious in view of Flanagan, either alone, or in combination with the remaining references cited by the Examiner.

Krause also was cited against this application. This reference, like the others cited by the Examiner, is quite dated as it was published in 1939. The fact that no one appreciated that the method according to the present invention was possible in the 50 years between the publication date of Krause and the conception date of the present invention indicates that the present invention is non-obvious from Krause. Furthermore, there is no teaching in Krause of an electrolyte consisting of sulfuric acid and D₂O, particularly such an electrolyte that is useful for the production of a thermal output. Instead, Krause was concerned with the absorption of hydrogen gas by a palladium cathode. Because Krause used hydrogen gas, this reference provides no teaching concerning the electrolyte referred to in the claims of the present application, and hence cannot render the method claims obvious, either alone or in combination with the remaining references.

Independent claim 1 states that electrolyte comprises D₂O and sulfuric acid. As stated above, Fleischman does not teach or suggest using an ionizable acid in the electrolyte at all, but rather uses LiOD. The secondary references do not cure this deficiency of the primary reference as discussed above. As a result, this rejection should be withdrawn.

Dependent claims 2-9 depend from claim 1 and are allowable for the reasons stated above concerning independent claim 1, and for the additional combination of patentable features recited in these dependent claims.

XII. Rejection of Claim 4

Claims 4 is rejected under 35 U.S.C. § 103 as being unpatentable over Fleischman *et al.* (Fleischman) or Pavelle in view of any of von Sturm, Spengler, Fedorova, Flanagan, or Krause, and further in view of George *et al.*, Edison, Jenson or Klein *et al.* Applicant traverses this rejection, and requests that it be withdrawn.

Fleischman is discussed above. Pavelle suffers from the same deficiencies as Fleischman. The additional references do not cure the defects noted for the references in the previous section. For this reason, and for any additional reasons provided by applicants in progenitor applications, the rejection of claim 4 under 35 U.S.C. § 103 should be withdrawn.

XIII. Rejection of Claim 6

Claim 6 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable for obviousness over Fleischmann *et al.*, Pavel *et al.*, in view of any of von Sturm, Krause *et al.*, Federova *et al.*, Flanagan *et al.*, or Spengler *et al.* and further in view of any of Williams *et al.*, Storms *et al.*, or Bertalot *et al.*. Applicant traverses this rejection and requests that it be withdrawn.

Applicant's claims state that the electrolyte includes sulfuric acid. Fleischman does not teach or suggest using an ionizable acid at all. Fleischman discloses using LiOD as the electrolyte, not sulfuric acid. In fact, LiOD was critical to Fleischman's process because he required a source of D⁺ not a source of H⁺. Therefore, the primary reference fails to teach certain elements of the claims, and would not be modified in such a way as to teach the invention of the present application.

von Sturm and Spengler concern electrolysis of water, and teach away from using a deuterated species as required by the claims. If von Sturm or Spengler were to use a deuterated electrolyte, the results would be the production of DH and not H₂. Furthermore, these secondary references provide no teaching as to the methods of producing heat energy in the unexpectedly superior manner claimed in the present invention.

Fedorova was published in 1959, three decades prior to the conception of the present invention. Fedorova provides no teachings concerning the electrolyte used by the present invention to produce excess thermal heat. In fact, the passage referred to by the Examiner simply concerns cleaning the electrodes, and does not teach using an electrolyte containing both sulfuric acid and D₂O. Fedorova specifically states that "before the experiment the electrodes were degreased by heating to 60°C in concentrated sulfuric acid, [and] carefully washed in twice-distilled water..." What relevance does the degreasing of electrodes by Fedorova have to the production of a thermal output according to the method steps of the present invention?

Flanagan was published in 1961, and therefore also is almost three decades prior to the conception of the present invention. Flanagan appears to teach using palladium cathodes in a DCl solution. Applicant understands that he was not the first to recognize that palladium could be used as a cathode, nor the first to recognize that hydrochloric acid, or DCl, solutions can be used as electrolytes. However, prior to applicant's invention, it was not recognized that unexpected productions of excess heat could result if an electrolyte solution containing sulfuric acid, as opposed to DCl, and a palladium cathode were used. As a result, the present invention is not obvious in view of Flanagan, either alone, or in combination with the remaining references cited by the Examiner.

Krause also was cited against this application. This reference, like the others cited by the Examiner, is quite dated as it was published in 1939. The fact that no one appreciated that the method according to the present invention was possible in the 50 years between the publication date of Krause and the conception date of the present invention indicates that the present invention is non-obvious from Krause. Furthermore, there is no teaching in Krause of an electrolyte consisting of sulfuric acid and D₂O, particularly such an electrolyte that is useful for the production of a thermal output. Instead, Krause was concerned with the absorption of hydrogen gas by a palladium cathode. Because Krause used hydrogen gas, this reference provides no teaching concerning the electrolyte referred to in the claims of the present application, and hence cannot render the method claims obvious, either alone or in combination with the remaining references.

None of Pavelle *et al.*, Williams *et al.*, Storms *et al.* or Bertalot *et al.* cure the deficiencies of the references as discussed above. The rejection of claim 6 therefore should be withdrawn.

XIV. Rejection Over Dash et al. Under 35 U.S.C. § 102(b)

The Examiner has attempted to reject the claims of the present application over Dash's own publication, which includes exactly the same teachings as the present application. Applicant's parent application certainly is enabling for the reasons stated above, and the present application is entitled to the filing date of the parent application. Thus, the Examiner's assertion that the parent was not enabling is respectfully traversed.

Moreover, the Examiner cannot have it both ways. Either the parent application was enabling under 35 U.S.C. § 112, first paragraph, and applicant certainly asserts that it is, or it is not enabling and hence cannot be used as a prior art reference. It cannot be both ways simultaneously.

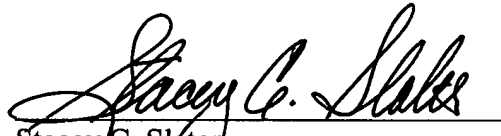
For these reasons, applicant requests that the rejection of claims 1-9 under 35 U.S.C § 102(b) be withdrawn.

This application is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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